

Resilience 2014

7th Workshop on Resiliency
in High Performance Computing

Held in conjunction with Euro-Par 2014.
August 25, 2014, Porto, Portugal

Mission

To address the resilience challenges posed to high performance computing hardware, system software, and application software as a result of the substantial computer growth in raw physical size, system scale, and the underlying component count.

Areas of Interest (some...)

- Reports on current HPC system and application resiliency
- HPC resiliency metrics and standards
- HPC system and application resiliency analysis
- HPC system and application-level fault handling and anticipation
- HPC system and application health monitoring
- Resiliency for HPC file and storage systems
- System-level checkpoint/restart for HPC
- System-level migration for HPC
- Algorithm-based resiliency fundamentals for HPC (not Hadoop)
- Fault tolerant MPI concepts and solutions
- Soft error detection and recovery in HPC systems
- HPC system and application log analysis
- Statistical methods to identify failure root causes
- Fault injection studies in HPC environments
- High availability solutions for HPC systems
- Reliability and availability analysis
- Hardware for fault detection and recovery
- Resource management for system resiliency and availability

Organization

- General Chairs:
 - Stephen L. Scott (Tennessee Tech University & Oak Ridge National Laboratory)
 - Chokchai (Box) Leangsuksun (Louisiana Tech University)
- Program Chair:
 - Christian Engelmann (Oak Ridge National Laboratory)
 - Patrick G. Bridges (University of New Mexico)

History: Workshop on Resiliency in High Performance Computing

- 2008 May (1st)
 - CCGrid, Lyon, France
- 2009 June (2nd)
 - HPDC, Munich, Germany
- 2010 May (3rd)
 - CCGrid, Melbourne, Australia
- 2011 August (4th)
 - EuroPar, Bordeaux, France
- 2012 August (5th)
 - EuroPar, Rhodes Island, Greece
- 2013 August (6th)
 - EuroPar, Aachen, Germany
- 2014 August (7th)
 - EuroPar, Porto, Portugal
- xcr.cenit.latech.edu/resilienceYEAR

Related: High Availability and Performance Computing Workshop (HAPCW)

- 2003 – 2006 held with LACSI
- 2007 no LACSI, no HAPCW
- 2008 April
 - Held in conjunction with High-Performance Computer Science Week
 - LACSI ended in 2007
 - Last in HAPCW series
- xcr.cenit.latech.edu/hapcwYEAR

Related: Resiliency Summit

- 2008-2009-2010
- Held with LACSS
 - LACSS ended 2010
- Invited talk format
- Location: Santa Fe, New Mexico – USA
- www.csm.ornl.gov/srt/conferences/ResilienceSummit/20YY

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Program

Session 1: 9:00 – 10:30

Coffee Break

Session 2: 11:00 – 12:30

Lunch

Session 3: 14:00 – 16:00

Coffee Break

Session 4: 16:30 – 17:00

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Program

Keynote: 60 minutes

(50-55 for presentation + 5-10 for questions)

Regular Papers: 30 minutes

(25 for presentation + 5 for questions)

Program: Session 1

- 09:00 ***"Opening"***
Christian Engelmann
- 09:30 ***KEYNOTE: "Algorithms for Coping with Silent Errors"***
Yves Robert (17 attendees, good discussion during the talk)
- 10:30 Coffee Break

Program: Session 2

- 11:00 ***“On Undecidability Aspects of Resilient Computations and Implications to Exascale”***
Nageswara Rao (19 attendees)
- 11:30 ***“An Automated Performance-Aware Approach to Reliability Transformations”***
Jacob Lidman, Sally McKee, Daniel Quinlan and Chunhua Liao (19 attendees)
- 12:00 ***“A Methodology for Application-Level Asynchronous Checkpointing for MPI Applications”***
Jiaqi Liu and Gagan Agrawal (no-show)

Lunch

- 12:30-14:00
 - Please be courteous to our speakers...
 - Please be seated and ready to begin next session at 14:00.

Program: Session 3

- 14:00 ***“The External Recovery Problem”***
Arkadiusz Danilecki, Anna Kobusinska, Piotr Zierhoffer and Mateus Holenko (13 attendees, good questions)
- 14:30 ***“Fliplt: An LLVM Based Fault Injector for HPC”***
Jon Calhoun, Luke Olson and Marc Snir (13 attendees)
- 15:00 ***“Efficient Reliability in Volunteer Storage Systems with Random Linear Coding”***
Adam Visegradi and Peter Kacsuk
- 15:30 ***“What is the right balance for performance and isolation with virtualization in HPC”***
Thomas Naughton, Garry Smith, Christian Engelmann, Geoffroy Vallee, Ferrol Aderholdt and Stephen Scott

Program: Session 4

- 16:00 Coffee Break
- 16:30 ***“Discussion and Closing”***

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Send me your presentation slides

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